

IN THE CLAIMS

Please amend the claims as follows.

1. (Previously Presented) An apparatus, comprising:
a die;
a heat spreader mounted adjacent the die;
a buffer layer formed above a surface of the heat spreader; and
a thermal interface material interposed in a gap between the die and the heat spreader; the thermal interface material comprising an array of carbon nanotubes formed above the buffer layer.
2. (Original) The apparatus of claim 1, wherein selected carbon nanotubes of the array of carbon nanotubes are bonded to adjacent carbon nanotubes of the array of carbon nanotubes.
3. (Previously Presented) The apparatus of claim 1, wherein a further buffer layer is interposed between the interface material and the die.
4. (Original) The apparatus of claim 1, wherein the buffer layer comprises a metal.
5. (Original) The apparatus of claim 1, wherein a portion of at least some carbon nanotubes of the array of carbon nanotubes are coated with metal.
6. (Original) The apparatus of claim 3, wherein the buffer layer comprises a film selected from the group consisting of Cr, Mo, Ti, SiC and TiC.
7. (Original) The apparatus of claim 1, wherein a buffer layer is interposed between the thermal interface material and the heat spreader.

8. (Original) The apparatus of claim 7, wherein the buffer layer comprises a catalyst for carbon nanotube growth selected from the group consisting of at least one of Co, Fe and Ni.

9. (Original) The apparatus of claim 1, wherein the length of at least some of the carbon nanotubes slightly exceeds the width of the gap.

10. (Previously Presented) The apparatus of claim 1, wherein free ends of at least some of the carbon nanotubes project from the array of carbon nanotubes to embed them in the surface of the heat spreader.

11. (Original) The apparatus of claim 10, wherein the surface is a coating.

12. (Original) The apparatus of claim 1 wherein the length of some of the carbon nanotubes exceeds a predetermined gap by a distance established by the height of a spacer inserted in the gap.

13. (Previously Presented) An apparatus, comprising:
a buffer layer formed above a surface of a heat spreader; and
an array of carbon nanotubes formed above the buffer layer to be interposed between a die and the heat spreader, a longitudinal axis of some of the carbon nanotubes substantially commonly oriented and aligned substantially perpendicular to the surface of the heat spreader.

14. (Original) The apparatus of claim 13, wherein the buffer layer consists of a film selected from the group consisting of Cr, Mo, Ti, W, SiC and TiC.

15. (Original) The apparatus of claim 13, wherein the length of some of the carbon nanotubes exceeds a predetermined gap by a distance established by the height of a spacer inserted in the gap between the die and the heat spreader.

16. (Currently Amended) A computing system, comprising:
a die including a die surface and a circuit;
a heat sink; a thermal intermediate interposed between the die surface and the heat sink
and having an array of carbon nanotubes and ~~a~~ ~~at least one~~ buffer layer coupled to the array of
carbon nanotubes and ~~at least one of~~ the heat sink ~~and the die surface~~; and
at least one dynamic random access memory device.
17. (Original) The system of claim 16, wherein the circuit comprises a processor that
acts upon data signals, and may include, for example, a microprocessor.
18. (Original) The system of claim 16, wherein the buffer layer comprises a metal.
- 19-29. (Canceled)
30. (New) An apparatus, comprising:
a die;
a heat spreader mounted adjacent the die;
a buffer layer formed on a surface of the heat spreader; and
a thermal interface material interposed in a gap between the die and the heat spreader; the
thermal interface material comprising an array of carbon nanotubes formed in contact with the
buffer layer.
31. (New) The apparatus of claim 30, wherein selected carbon nanotubes of the array
of carbon nanotubes are bonded to adjacent carbon nanotubes of the array of carbon nanotubes.
32. (New) The apparatus of claim 30, wherein a further buffer layer is interposed
between the interface material and the die.
33. (New) The apparatus of claim 30, wherein the buffer layer comprises a metal.

34. (New) The apparatus of claim 30, wherein a portion of at least some carbon nanotubes of the array of carbon nanotubes are coated with metal.
35. (New) The apparatus of claim 32, wherein the buffer layer comprises a film selected from the group consisting of Cr, Mo, Ti, SiC and TiC.
36. (New) The apparatus of claim 30, wherein a buffer layer is interposed between the thermal interface material and the heat spreader.
37. (New) The apparatus of claim 36, wherein the buffer layer comprises a catalyst for carbon nanotube growth selected from the group consisting of at least one of Co, Fe and Ni.
38. (New) The apparatus of claim 30, wherein the length of at least some of the carbon nanotubes slightly exceeds the width of the gap.
39. (New) The apparatus of claim 30, wherein free ends of at least some of the carbon nanotubes project from the array of carbon nanotubes to embed them in the surface of the heat spreader.
40. (New) The apparatus of claim 39, wherein the surface is a coating.
41. (New) The apparatus of claim 30 wherein the length of some of the carbon nanotubes exceeds a predetermined gap by a distance established by the height of a spacer inserted in the gap.